

AVIATION WEEK

Exclusive Report
AIRLINE EQUIPMENT OVERHAUL TIME

APR. 23, 1951

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This PANTHER has sharper claws!

Latest modification of the GRUMMAN PANTHER, the F9F-5, is more powerful, aerodynamically cleaner, faster, and reaches higher altitudes than its predecessors. First jet aircraft used by the Navy in combat, the PANTHER is currently flown from carrier bases by Navy pilots and from Korean fields by pilots of the

GRUMMAN AIRCRAFT ENGINEERING CORPORATION, BETHLEHEM

Contractors to the Armed Forces

**Power-absorbing "load bank" verifies
performance of Sundstrand alternator drive**



**Load bank duplicates characteristics
of all control functions on the B-36**

Completely housed in this steel cabinet is one of the world's largest "load banks" . . . developed by Sundstrand specifically for testing constant speed alternator drives used on the B-36. Drives can be tested simultaneously, and in parallel, at speeds duplicating those of the engines on a B-36 from take-off to landing. Characteristics of all the control functions on the plane are present. This same type of load bank will be used for testing and run-in purposes on Sundstrand constant speed auxiliary drives for transports, bombers and fighters. It is typical of Sundstrand's facilities for research, design engineering and process production of specialized aircraft hydraulic products.



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B.F. Goodrich



Open and shut case for B. F. Goodrich zippers

Shut up terrain of battle Designers wanted to make the best air door on the Douglas C-123 (top left above) in 6-foot sections. They needed a strong, flexible coupling that would permit easy removal of the sections. B. F. Goodrich Pressure Sealing Zippers proved ideal. They provide a 100% seal, resist the heat, severe vibration, severe overpressure

ing Zipper down the middle of the trail. Result: the zipper's overlapping lips keep a tight seal. And maintenance can simply open the seal off.

Keeps down noise battering plane's nose. The Lockheed Neptune's problem was to keep fuel fumes from the bomb bay out of the forward compartment—yet keep a ready romance between the two. BFG engineers built a makeshift canopy. A Pressure Sealing 60-foot seal of the type revised the edge, sealing the current strength and also easily removable (bottom left above).

Zipper holds 12-man team, walks itself in seconds. The Coast Guard needed a storage case for inflatable life

craft. A case that would end the waste and cost, be easily portable and open quickly. BFG engineers designed a case with a Pressure Sealing Zipper: closing all the way around and an automatically-opened lock (bottom right above). The case is water-tight. It transports personnel at the rate of 12 men per minute. The storage case can be handled by one man. If you have a problem with a zipper, might we add, check with B. F. Goodrich Pressure Sealing Zippers. The B. F. Goodrich Company, Automotive Devices Division, Akron, Ohio.

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FIRST IN RUBBER



Forgings for the aircraft industry today demand the utmost in engineering and production techniques and in scientific laboratory control. This massive complicated landing gear component, weighing over 400 pounds, is typical of Wyman-Gordon's forging contribution to the ever-growing progress in aircraft design. In crankshafts for the automotive industry and in all types of aircraft forgings, steel and light alloy, Wyman-Gordon has pioneered in the development of forging "know-how"—there is no substitute for Wyman-Gordon experience.

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NEWS DIGEST

DOMESTIC

A. F. Foster has been elected a vice president and general manager of Convair. A return of 21 years experience in aviation, Foster returned to that company after he held executive positions in government positions between 1959-1963. President LaMotte T. Cohn had held the role of general manager.

Piedmont H-35 in the Army designation of the HUP-2 helicopter which was being purchased for service in the Transportation Corps out of fiscal 1951 funds

Tow XRD-1 Constitution-type transports will continue in operations under a new grant of funds for space, engine over-haul and 150-hr. heavy maintenance; those remaining will be used as on-call logistics assets between California and Hawaii and the West Coast and Washington, D. C. Official Navy case assets were made on the trouble-free 800-hr. operation of the two 150-passenger Lockheed planes, and Navy and Air Force contracts will be kept at service for their second life.

Materials allocations for sea-airplane and plane manufacturers seemed assured to permit each company to produce at least one-third of its 1960 rate. This would result output of approximately 1500 planes a year. CAA said Air Conditioning Committee has agreed upon a plan that the Civil Aviation Products Administration was expected to give the go-ahead last week.

Souste has confirmed the construction of Delta Research at Undersecretary of Commerce for Transportation, Donald Nelson, as head of a team of Civil Aeromaritime Board and Charles Horns at Civil Aviation Admin. Administrator. President is assigned to designate NACA or CAB chairman, according to Souste.

Consolidated Vultee Aircraft is negotiating with Navy for construction of a propeller aircraft plant at Parsons, Colo., for production of the surface-to-air 2000-lb. rocket-propelled anti-aircraft Turret missile.

National-Bailey interchange between New York and South American points Overseas Ware Inc. (OBI) was lastingly approved by CAB and set off a chain of decisions. The American flight advertising, the first FAA director in Parsons did likewise. PAN's big point is current Panagra plant leases Balboa and Mirepoix because the carrier's next "throughness" agreement and Panagra cannot obtain these plates to Nordest, and CAB has no

right to interfere with a charter. W. B. Green Jr. Co., the owner of Panagra, claims it has the legal right to charter planes to Nordest.

FINANCIAL

Consolidated Vultee Aircraft Corp. has reported a profit of \$1,015,500 for the first quarter of 1961, before provision for federal taxes. Sales for the period were \$63,813,990. A dividend of 15 cents per share was declared, payable May 23 to stockholders of May 13.

Birdie Aircraft Corp. has reported a net quarterly dividend of 20 cents per share to stockholders of record April 23, payable May 4.

Douglas Aircraft Building Ap. 1 is \$718,712,864, including West War II's and First quarter sales of \$353,369,999 are 18 percent over a year ago. Net earnings of \$1,681,500 or \$2.80 a share are up 41 percent. Sales are 15 percent of the Ap. 1 Building's commercial orders for 92 DC-8s. Of the military backlog, 324 planes in Navy, 666 percent up.

Pacific Aerospace Corp. reports first-quarter sales of \$4,270,000-636,000 short of the previous period's \$4,992,000 backlog continues over \$9 million, with the Manufacturing Division's backlog being over \$2 million.

INTERNATIONAL

Suisse Al Liss DC-3 crashed at sea in the vicinity of Cape d'Agde (near Hong Kong) with seven aboard. All passengers, on wreckage or any remains had been sighted.

William G. Perring, director of the Royal Aircraft Establishment, Farnborough, England, since 1956, died at the age of 51. He joined the Farnborough staff in 1925.

Canada will spend about \$300 million in U. S. on defense items in fiscal 1962-63, according to Canadian Defense Minister Claude Charron. Most of the money will be for engines and components for the Canadian-built F-104 and for Avro and Avro-Fairchild components to replace strike units in Western Europe.

Canadian government has placed orders for \$267 million worth of Avro Canada CF-100 and Canadair F-86B jet fighters, and for reconditioning a considerable quantity of World War II aircraft engines.

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SIMPLEST,
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SYSTEM OF
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TurboTrol instruments now back-haunch output, 26 volt dc operation and reversible motor, magnetic brake, built-in emergency stop, and variable, continuously adjustable trim tabs. Turbocoupler, turbine radio receiver. Afterburner Turbocoupler units can be used to synchronize two or more TurboTrols. Turbocoupler permits "locking" the output without, combined, thus eliminating a position indicator.

Offered in two models, differing in size and performance requirements, the standard unit is designed to provide a maximum output of 2000 rpm, while the improved model, Turbocoupler, has exceeded the requirements of Specification Nos. AFM-M-48, AFM-4391, TN TR698-3.



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By ARTHUR H. COOPER

RELIABLE



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SIDELIGHTS

Budget Delayed to May

Budget Bureau doesn't expect to be able to submit fiscal 1962 final year budget for the military services to Congress before May. Proposals now at the \$56-billion mark indicate that the 1962 final year program will be \$1.5 billion larger than the \$54.5-billion estimate of about \$57 billion or a \$1.5-billion extra peace defense build-up. The original program was a \$1.5-billion supplemental adjustment to a \$56-billion '62 budget, a total of \$57 billion. When the services knock up estimates on this program, though, the total come out \$58.5 billion.

Congress

W. Stuart Symington, chairman of NSRB, was selected by the President as the new SECDEF administrator. There were not enough votes in House & Senate to defeat the President's plan to leave the agency headed by a single administrative referee until the fall election. Senator Small (Dem., Miss.) and Senator George Smathers (Dem., Fla.) may withdraw from CAR Committee funds and O'Donnell for hearings on the role of non-shots in air transport.

European Recovery Program

Aero Club of Italy wants to buy 10 trans-plateau Bisch Master trainers though EEC, but Italian manufacturers are trying to keep the sale, claiming it infringes on their right to establish Italian production.

Marines Not Wanted

All three members of Joint Chiefs of Staff (Navy, Army, Air Force) oppose the Marine Corps' proposal to take F4D according to a letter to Senate Armed Services Committee from Defense Secretary Marshall. The committee opened hearings last week on legislation, backed by 43 senators and 67 representatives, supporting this, and a decision of Marine strength to four divisions and four to wing.

Daytona

An AF Materiel Command has recruited a second combat industrial explosives unit at Wright-Patterson AFB on Armed Forces Day, despite huge crowd drives by Air Force controllers last year. Known as the emergency, and short for Production, the unit will be located in Dayton, Ohio, to assist new administrators for peace AF contractors. "Mudpot" sought by some subcontractors by cycling for DO-1 for longer periods of added materials than are called for in their contracts are being waived during the AF Materiel Command & Development Command, while waiting for top authority to decide on permanent quarters, it moved up in a postwar shop at Hill Bldg. 13 of Wright-Patterson AFB, in fair condition, and made comfortable in a parking garage under the commandant's office. Col. Clarence W. Wilcox, award public information (Continued on page 10)



NEWEST NEPTUNE-Latest version of the Lockheed long range Navy patrol bomber, the P-3B, incorporates changes in nose area and two blade main engines in place of earlier model's six fast 20-in increased and improved radar gear for tracking enemy aerial craft. First P-3Bs will be delivered this month. The eight-place plane has two 1250-hp. Wright R-3350-36W compound engines.



KC-97 FIELD MODIFICATION-The development of the giant Convair XC-99 as a front-line strategic cargo craft would be an important advancement to bigger all-douglas, but as yet it exists only "in concept". A clever photo lab technique at Kelly AFB, Tex., made this remarkable picture montage to mark April Fool's Day and appropriately designated the result the XC-19. Coming events . . . ?

Aviation Picture Highlights of the Week

NEW YORK'S FIRST HELIPORT-The 414th B. platoon mounted atop the Ton Anthony building in lower Manhattan will be used as a base for the Authority's Bell 47 gunships which will conduct trials between revised airports. Mean while, it is being proved out by the Police Dept.'s Bell helicopters.



AVIATOR ESCALATOR-A help to test Navy carrier pilots in the most realistic, probably the first such installation, aboard the USS "Enterprise", one of the Navy's new Essex-class aircraft carriers.



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MACWHYTE COMPANY

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WHO'S WHERE

In the Front Office

Alvin G. Morris has been appointed vice president of Marketing and Sales Vice President of Standard Coal Products Co. As successor, Morris has been assistant general manager at Kalamazoo, Mich., the firm he joined, prior to that was manager of the sales and service contracting department.

William E. Tamm, formerly a vice president of American Breeding Corp., also a member of the firm's administration committee, will continue to be general manager of the company's cattle breeding division, president Foster general director.

Robert F. Johnson has been named vice president and assistant to the president of United Air Lines. Johnson, who has been with UAL for 22 years, has been and will continue to be responsible for public relations, advertising and public relations.

Charles F. Roettig has been appointed assistant to Vice Adm. Elmer L. Land, now head of the Air Transport Area. Roettig continues his duties as director of AT&T's public affairs department.

What They're Doing

Rufing A. Moyer former vice president and chief engineer of Western Aircraft Corp., has joined Avco Corp. to serve in the field of industrial and power plant design and parts. Moyer is president and chief engineer of the new concern, which is located at 11689 Klinger Ave., Detroit 12.

Raymond S. Strode, who has been detailed as a test pilot for the U.S. Navy, has been recalled from NASA at the end of the 8th day. He has been an government scientist for more than 20 years, his first position being with the Post Office Department. He transferred to NASA in 1960 to support Aerobee R&D of the Department of Commerce at 1935

Changes

Barry B. Reynolds has joined Bellanca Corp. as technical expert and Robert A. Clarke has joined the firm as electronics engineer to help in a new development. Robert A. Wolf has joined as an engineer in the program design of Bell Aircraft in Bellanca's principal design office in Cleveland. Wolf's special assignment is to handle operational analysis and mission evaluation.

Paul Rausch has become a director of John Deere Tractor and Implement Co.

Donald M. Moore has been elected senior vice president of Boeing Aircraft's newly formed service organization for its Gas Turbine Division. John E. Schlesinger is new public relations director for General Airlines.

INDUSTRY OBSERVER

Several top-ranking people at AMC flight test laboratories plan to leave the agency to take executive posts at a basic metal from the Controlled Materials Plan for scheduling control materials. These AMC people say magnesium should be listed along with aluminum, copper and steel, and they may push for revision of CMP, to include it as a primary metal.

After long delay Curtiss-Wright hopes to deliver a two-cylinder rocket engine to Bell Aircraft for X-2 powerplant. Unit is undergoing static tests at the Wright plant and at Lake Success, N. Y., Rocket Engine Test Facility. The engine is said to deliver approximately 15,000 lb. thrust.

* USAF Senior Officers Board is in session to determine sources of information for the 1964 procurement interceptor competition (Aviation Week Apr. 14). Hughes Aircraft was the first place for design of the electronic guidance system. Military sources have indicated that most of the aircraft entries are completely nonconventional in comparison to present guidance configurations. Interceptor objectives and some military planners predict that wind tunnel experimental models will go to North American Aviation. Plans will cover a pilot version, so it will be completely automatic, capable of near speed, and able to knock down an enemy bomber of 60,000 lb. It will carry one air-to-air guided missile.

* Grumman has completed 90 percent of an AMC project for development of a double looped magnesium bracing wheel for heavy transports. The new wheels are expected to last a life ten times that of existing wheels.

* Remo Aircraft is about to complete the first of an experimental USAF order of jet-fighter magnesium wingtip tanks. They will be evaluated against aluminum tanks. Project is an evolution of a tank to replace more critical aluminum with magnesium in aircraft components.

* Reynolds Metals' experimental program to evaluate aluminum cylinders with walls made reinforcing ribs—which can be cut and straightened into ribbed aluminum sheet has encountered a problem, in the form of a kink which appears on the sheet when the sheet is bent around the cylinder wall. Further work is being done to eliminate the kink. Meanwhile, Reynolds has produced laboratory samples of rolled-capped aluminum sheet of aircraft size and quality, including stepped ribbed sheet, and is continuing development on this project, started by the USAF in 1948.

* Variolite ever larger jet engine in the USAF procurement program is in the process of a components reflight study for evaluation of critical materials and for improved producibility in large quantities.

* Strategic Air Command Headquarters requirements at Omaha are expected to keep 200 big Boeing Neosho plant busy. It doesn't figure in the present state of plant arrangements to manufacture. At the present time of unusual amount of aircraft parts from storage, the Omaha plant may be cleared in about six months and then SAC is likely to take it over completely, as Air Materiel Command did with the Oklahoma City Douglas plant of World War II.

* Open light liaison experimental approach to the critical problem of making aircraft ties more reliable (Aviation Week Apr. 9) is being investigated for the USAF by two competitor manufacturers. The development to increase power takes that will operate at a higher temperature and be more resistant to bending than glass tubes ever are.

* Shrouded combustion of jet-engine engines have just about written them off as a future Air Force powerplant is discounted, with the possible exception of high-speed cargo. And even here consensus seems to be that anything the jet-engine can do, a ramjet can do faster and better, once it gets started.

AVIATION WEEK

Washington Roundup

MacArthur on Air Power

"Even before General Douglas MacArthur was to speak before Congress last week, Washington observers felt he would tilt up the nose of the power, the one of mystery." "Belly" Mitchell wrote Mitchell left it, with his "head a diameter and a half ago." In his closing days, Mitchell had been in MacArthur's world.

MacArthur's fight will be for an air service co-equal with the ground and naval services.

MacArthur's fight will be for a dominant air force—a "first line of defense" supported by ground and sea forces in auxiliary roles.

Members of Congress and top military officers, who have conferred privately with the Senator, say a "taciturn" that he will march into the role of crusading general to MacArthur.

MacArthur supporters claim they have documentary evidence that he was the vociferous opponent the winter of 1935-36 of legislation which suspended Mitchell from the Army for five years.

If he did, Mitchell apparently never knew it. But he was aware that MacArthur sympathized with his position when he wrote in 1935, shortly before his death:

"A number of the men who convinced me will be called upon again to fight this issue in a second world war in all probability. I hope they will have understanding after I am gone."

"Douglas MacArthur, I believe, will be the first to admit that I was right when the war came. He respects that just as much as my own material. May he have enough to go to my grave."

Democrats have long suspected that the behind-the-scenes Wherry advocates of air power are obsessed, possibly with political as well as military reasons, of a MacArthur-esque plan for U.S. air defense.

Congressmen Taft and Wherry, the record indicators, have filed defense air rate bills. The result, uncertainty on defense funds supported the Truman policies' stalemate of the Strategic Air Fleet program, to promote economy. Their recent advocacy of air power has largely written off its Washington at present.

But major military case MacArthur can be counted on to beat his defense policy first. On this step, Democrats, as well as Republicans, are ready to listen attentively to what he has to say.

Those who have talked with him know MacArthur's defense concept entailing almost build-up of strategic air power is this:

- The U.S. must take its defense to meet the challenge of a direct war with Russia—draw a decisive line, direct approach. It and other Russia crosses the line, squarely meet the challenge.

- The Administration's policy of Russia's "containment" through an air force of lead-in "joker aircraft" throughout the world will dominate the U.S. strength to meet the prime challenge.

- Under the first cause, the U.S. would dominate air warfare, the field where it is superior, thus giving promise of victory.

- Under the second cause, Russia is dictating military land war, probably will dictate a hopeless ground war to beat Europe against its opponents. Against the main armies the Russia controls in its hemisphere, airfields, and the Far East, the ground forces of the U.S., plus all

the Allied support it ought muster, can never hope to win.

The first Chiefs of Staff have drawn up their strategic concept, emphasizing build-up of the Army for "containment" to fit the Administration course. USAF's Chief of Staff has enthusiastically endorsed it to date.

Plane Contracting Delay

Outlook is that aircraft contracts will pass before Air Force and Navy can confer "letter of intent" with contractors for aircraft and engines.

The sources started dispatching the letters shortly after the dissolution of a "national emergency" last December. They didn't have funds to back them up, but anticipated there soon. They wanted to let manufacturers know what their requirements would be, so they could plan. The Administration and Congress were forced to appropriate funds for a quick defense build-up.

Then the reconversion mood set in. The present new Air Force and Navy will get "small amount" for plane and engine contracts while Congress approves a pending supplemental appropriations bill for this year, probably a few weeks.

• Funds for aircraft purchases on the 1951 fiscal year won't be available before July. Probably they will be tied up in Congress long after that date.

Hence Appropriations Committee members are demanding a "complete shopping list" of the military programs which will probably total about \$70 billion, for "through" review.

Added to this indication of delay, Republicans senators are preparing for a word battle to divert Army funds into the Air Force by a build-up of the strategic air arm.

Here and There

• Industrial Mobilization, Defense Minister Charles E. Wilson's plan for a one-shelf military industrial capacity that could triple production by going to these shelves at the push of a button has been modified. The plan now is for expansion to double capacity that could rapidly bring home a largely written off in Washington at present.

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—Katherine Johnson

Relief Speeded for Material-Short Plants

• Aircraft Production Resources Agency already set up and functioning for military contractors.

• Shortly, you will have to file your requirements, and then allocations will start about July 1.

• But a steady flow of materials into aircraft plants probably cannot begin much before September.

By Alexander McElroy

Dayton—How much aluminum, copper and steel will U.S. air power need? And how much will it get?

Answers to these two questions isn't easy.

But the job of piecing the answers together has been started here at Wright-Patterson AFB, by a committee of Air Force, Navy and Army, and a host of military aviation industry planners.

► **Planners**—They may feel encouraged in this knowledge. Just recently the same job was done successfully once before. That was in World War II when a tough administrator called Arnold Schlesinger. That made a lot of hot, headlined publicity because no one seemed to understand what the problem was. But that was built the present military and naval air fleet that the world has ever known.

Now the successor to ASAC, a similar setup with a few changes dictated by World War II experience, is getting set for a similar job.

This time, Department of Defense and the Air Procurement Agency, the Materials Board, are carrying the load. The four latter will be the aircraft Productivity Resources Agency.

Until April 15, when Major Francis J. Flanagan, NPA Administrator, announced the adoption of Controlled Materials Plan at Washington, the new APRA organization was only potentially a heavyweight outfit. A big part of the staff here was taken up with day-to-day trouble-shooting and reporting on the many problems of aircraft procurement.

APRA has announced that allocation of specific amounts of materials to processes will start July 1. The coming table lists the APRA planning year table that the distribution of allocations

to Air Force and Army power continue until when the Air Force will take its estimated 16 days. And at least six months will elapse while the prime contractor gets their allocations of material divided with their subcontractors and suppliers. Add the mill time and if it is apparent it will be well into September or possible October before quantity materials will be flowing from the mills under the new rules of the day.

The NPA announcement said that construction of military products, production for the Atomic Energy Commission, and certain defense related construction projects would be required to file their detailed requirements so soon which will be available May 1 through the Department of Commerce and its field offices, aircraft trade associations, and similar groups.

► **NPA Products**—Initially NPA's list of products will include which airplane items will be required which aircraft items are aircraft and aircraft parts, aircraft structures, metal-working machinery, and accessories, including welding and cutting apparatus, metal stamping, automation, electrical wiring devices and supplies, electrical insulation and insulating instruments, electrical machinery equipment for internal combustion engines, radio, radio and television equipment, radio tubes, tires and hoses, tires, aircraft instruments, optical goods, electronic equipment, repair and/or procurement equipment.

► **Comptech Products**—whose wartime tasks will come under the plan are in two categories:

- **Air Products** (including most defense production) classified in those for which the most convenient method of production substantiation and materials allocation is vertical. In other words, the prime contractor will give his subcontractor and different from the government agency that has his "customer," the subcontractor would only in turn pass the prime contractor, the subcontractor on the subcontractor, etc.

- **B Products** (including most defense production) classified in those for which either interchange or furnished horizontally directly to the products, including certain civilian type items, industrial instruments and equipment and certain components needed for defense. Products of B items will receive no allocation and allocations from NPA's industry division.

Once Controlled Materials Plan gets

selling, it is planned to decentralize the operation, after the first three months, handling cost negotiations and allocations through on-site field offices working with local producers. However, as the military aircraft program is concerned, APRA will check closely on cost negotiations and allocations to prevent significant military markdowns and delays in delivery.

► **Industries Responsibility**—APRA has stated that a major class of responsibility for sources of CMF is left to industry, particularly to the prime contractor. They will be expected to schedule production and allocations of materials to subcontractors so that the components are ready on time and in the right quantities. Some special programs will be instituted to insure availability of critical components which are in great demand.

Under the terms of existing non-compete, a substantial supply of the thin base metals—steel, copper and aluminum—will be left for non-defense production. Other NPA programs such as the M or heretofore orders on contracts will be used to keep the civilian industry in balance.

The APRA expansion in new cost centers includes many defense contractors, some of whom have been involved in the cost-cutting program of the War Department. It stands to reason that the cost-cutting process will be carried over to the defense industry. Some firms will be forced to leave the defense market if they cannot compete with the cost of the new cost centers.

► **APRA Makeup**—There is a basic APRA structure which includes industrial management and support, and industrial resources coordination.

While APRA has placed emphasis on only aluminum, steel and copper, APRA plus close attention to other materials as well. Its non-ferrous metal brands, for example, include special steels designed to withstand sheet and coilings and consolidation materials.

Important elements of APRA's industrial resources coordination reflected by the fact that there is a special committee board in the representatives section of APRA. Other committees include the labor representatives in each branch and bureaus for research materials and components.

A research and development branch in the materials section is charged with liaison with the Materials Board, NPA and other agencies and will be part of the structure, research, etc., for CMF operation.

While most of APRA's attention is concentrated on materials, it has branches in an intense communications section which are assigned to other in-

Our Expanding Industry...



SIKORSKY HELICOPTER CORP.'S main plant at Stratford, Conn., will look like the rest of the area, including all plants and leased facilities concentrated exclusively on military helicopter output by the end of 1951.

the program will have over 357,000 sq ft of area, including all plants and leased facilities concentrated exclusively on military helicopter output by the end of 1951.

Aerojet Plans to have the building completed by the end of 1952.

Chrysler Corp. has contracted to build four more of its Grumman Alouette II assault planes at its Louisville, Ky., plant. A total of 1,400 employees will be needed when top monthly output is attained.

Ryan Aerocoustics Co. began construction of a 14,000-sq-ft research-labhangar to provide additional facilities for military and civil aircraft noise and sonic fatigue departments. The building is expected to be completed by the end of 1952.

Bell Williams will build a 54,7 million-dollar hangar large enough to contain 17 B-47s, adjacent to the northeast section of the airplane parking area on Williams Management

center establishment problems, such as equipment, services and utilities, facilities and manpower.

► **Anticipations**—APRA operates under a closed round-table meeting. It is the intent of the military department units under policy direction and guidance of the Materials Board. It is intended to perform for the Materials Board and the military departments detailed work under policies and programs established by the Materials Board on inspection requirements and objectives, production scheduling and expedition, and compensation measures in support of the combined aircraft production schedules and incentive programs.

Not specifically its assignment calls for it to:

- Consolidate requirements for produc-

tion to facilitate operations; • Establish production resources to support CMF operations, within allowances for the production program, entitled incentives of production requirements and direct subordination in support.

• Forces and process control reports for plant maintenance, repair and operating supplies.

• Recommended measures for improving and accelerating production of aircraft and related procurement.

• Prepare production schedules for selecting critical components, ground, Clark and aerospace equipment in support of approved schedules for aircraft production and delivery.

• Prepare engineering, inspection, inspection, and quality control programs.

• Undertake conservation programs. • Perform other actions as directed.

Salaries Listed of Aviation Executives

Top salaries paid by aviation firms during 1950 are listed in a partial survey by Aviation Week. Details with 1949 income in parentheses are:

► **Aerospace Industries Corp.** Robert H. Green, president, \$100,000 plus \$10,000 bonus and \$10,000 plane; John F. Powers, vice president, \$85,000 plus \$10,000 bonus and \$10,000 plane; G. W. Hartley, Jr., vice president, \$85,000 plus \$10,000 bonus and \$10,000 plane; E. C. O'Neil, executive vice president, \$85,000 plus \$10,000 bonus and \$10,000 plane; J. C. O'Neil, director, \$85,000 plus \$10,000 bonus and \$10,000 plane; R. L. Clegg, director, \$85,000 plus \$10,000 bonus and \$10,000 plane; R. C. Johnson, director, \$85,000 plus \$10,000 bonus and \$10,000 plane; R. C. Johnson, director, \$85,000 plus \$10,000 bonus and \$10,000 plane.

► **Boeing** (Continued from page 10)

• For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Ford Motor Co.** William H. Allen, chairman, \$100,000 plus \$10,000 bonus and \$10,000 plane; Harry C. Ford, president, \$100,000 plus \$10,000 bonus and \$10,000 plane; Charles W. Wilson, executive vice president, \$100,000 plus \$10,000 bonus and \$10,000 plane; E. C. Sibley, director, \$100,000 plus \$10,000 bonus and \$10,000 plane; R. E. Smith, director, \$100,000 plus \$10,000 bonus and \$10,000 plane; R. E. Smith, director, \$100,000 plus \$10,000 bonus and \$10,000 plane.

► **General Dynamics** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Grumman Aircraft Engineering Corp.** James D. Doolittle, president, \$100,000 plus \$10,000 bonus and \$10,000 plane; W. E. Thompson, executive vice president, \$100,000 plus \$10,000 bonus and \$10,000 plane; E. C. O'Neil, director, \$100,000 plus \$10,000 bonus and \$10,000 plane; R. C. Johnson, director, \$100,000 plus \$10,000 bonus and \$10,000 plane.

► **Lockheed** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Martin** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **McDonnell** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **North American Aviation** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Northrop** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Piper** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Pratt & Whitney** (Continued from page 10)

• For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Republic** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Sperry Gyroscope** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Turbo-Union** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Vertol** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Wright** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Yerkes** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

► **Yost** (Continued from page 10) • For all officers and executives, \$100,000 plus \$10,000 bonus and \$10,000 plane; \$100,000 plus \$10,000 bonus and \$10,000 plane for chief financial officer.

the U.S. Some evasions tried from Japan to Texas to 20 hours, with one stop at Nathan Field, Honolulu.

National Air Races Planned for 1951

The National Air Races, the nation's annual aviation classic, will be resumed this year by a new ownership team, the Arkansas Wing Inc., of Little Rock.

The races, which started last year after an accuracy bid by former Defense Secretary Louis Johnson to induce military participation,

As Justice and Navy, in a coordinated decision, have agreed to take part providing they "not be unreasonably renamed" of the international situation," a Defense Dept. spokesman said yesterday.

Doctors where there's no race will be held this year yet have made by National Air Race headquarters, Bell Chicago and Detroit already have put in their bids. The races probably will be held over the Lake Del Norte weekend as in the past.

Bob Franklin, National Air Races general manager, said that the races this year would feature no separate jet aircraft events and that more of these would be sponsored in Denver, Indianapolis and Atlanta during General Motors.

They will also demonstrate by USAF, Navy and Marine fighter squadrons and flights of virtually every production aircraft in the U.S. air power armada, the Defense Dept. spokesman said, in addition to static displays of all three of the military services.

Franklin said every effort is being made to draw the Continental 1600-section, as well as each bid as part of the overall air classic. The Continental front was staged by the Auto Club of Detroit last year.

The continental small plane race, if it is won, will be the only solo race and race event of the show, Franklin assured.

Officially set safety standards, now set by the National Air Races committee last year, will govern this year's race.

Bargaining Handbook

A collective bargaining handbook for the aircraft industry is being compiled by the Bureau of Labor Statistics. It will highlight the prevailing practices to assist in various bargaining issues for use by unions and employers in grades in contract negotiations. This will be one of the first in a series covering several major industries.



'BUCK PRIVATE.' American Helicopter Co.'s one-place helicopter copilot seats and .



'HELLI-JEEP' of Roto-Craft Corp. shows the variety of West Coast helicopter designs.

Two New Copters Offered Military

Two more West Coast helicopter makers have entered the market, announced their plans for small rotary wing craft, last at the heels of Holley's Hammer and McCulloch's MC-4. (Aviation Week Feb. 19, p. 23; Mar. 25, p. 15). They are American Helicopter Co., Marathon Beach, Calif., and Roto-Craft Corp., Glendale. They are both boasting their craft for military use and holding back most of the details, but these the industry ends. American Helicopter's model is a single-seat gunship, while the other is a four-seat gunship. Both are design proposals for a two-man-co-pilot personnel transport and observation report.

American Helicopter's XA-6 "Buck Private," is the second one-place helicopter built by the firm. The first, the XA-5 "Top Sergeant," is a two-place craft that first flew in January, 1949. The XA-5 has an empty weight of about 200 lbs., and is about as simple as you

can get a helicopter, merely a single boom structure taking a single seat and small swiveling landing gear. It has an endurance of about one and one-half hours without refueling.

Roto-Craft Corp.'s "Heli-Jeep," is planned to be about 25 ft. long, with about seven ft. wide to accomodate stretcher. Powerplant is to be a single 275-hp engine interconnected with transmission units running under the floor. The craft is designed for a speed of approximately 100 mph, maximum range 200-300 miles, and useful load of 1500 lbs.

Other manufacturers are expected to join the competition to supply the Armed Forces with rotary wing craft. Since use of the craft is becoming more widespread on the heels of its success in Korea operations, defense officials will probably call for a larger role for the helicopter in their future mobilization plans.

SIDLIGHTS

(Continued from page 5)

son officer at AMG is going with Western aircraft as personnel & pilot adviser to the new 100th unit now training in Arizona. Many Leibman, son of the late George Leibman, has succeeded his father as District representative for Farnsfield Roger & Aeroplane Corp.

MATS

Western Air Transport Service at Tucson, Ariz., Washington, D. C. runs the world's only twice weekly regional passenger, cargo, general, medical, aircraft, heating air conditioning, residential refrigeration and medical. Starting when we 81463 to 38420.

Army

Two of four of the Canadian L-21B light transports recently purchased are in test at Ft. Detrick's Aviation Center. All four aircraft are to be delivered in August and will be used for light cargo transport. Negotiations between Army, USAF and Erick Aircraft Corp. for purchase of four Twin Otter aircraft remain active. Purchase will be made out of the third supplemental budget. A 1949 contract with Ft. Monmouth, N. J., Army Field Power HQ is serving completion.

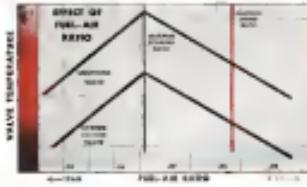
Air Force

USAF is considering a complete "missile pool" at the Poston. Already in partial operation, it will be nerve center of all USAF operations. AF has encircled the Poston, Mo., missile range to Denver, Colo., and the Poston range, but the AF shielded sections will continue for the time being. AF Range now has no official tag. It carries the AF test on a shielded background with a shoulder patch of lightning bolt and a circle of 15 stars. **General AFRA**, C. G. is responsible Poston AFRA for Capt. John G. Dushane of World War II.

Industry

Conair seems to call its new California plant the "Aviation Division" but New user on OK that new word, coined by **Aviation Week**. Aircraft Industries Assoc. reports expenditures of \$10 million in capital equipment of \$20,000 for 1950 as its report to the Chair of the House under the Lobbying Act. **Pete S. Whitney** is following the same path of licensing agreements with auto manufacturers in during World War II. He has signed up with the following companies for engines: Buick, a tall building corporation of an 1840 stock. Later it is a bearing by NSL, scheduled for May 1, as a complete the company (Baptist referred to other uses of the works, and the name of the company is not mentioned specifically). **Regalite Airlines**, holding up for the P-51, will be able to order on the E model, in that for a time both models will be in production at once in the engineering

plants. **Regalite Airlines**, holding up for the P-51, will be able to order on the E model, in that for a time both models will be in production at once in the engineering



The Effectiveness of Sodium Cooling



In considering factors which influence exhaust valve life, temperature is the dominant one. High temperatures sharply reduce the resistance to corrosion, distortion, and fatigue life of the finest alloy steel. The effectiveness of sodium cooling in reducing valve temperatures is shown by the curves above, typical of recorded test data.

The curve "Effect of Fuel-Air Ratio" shows that as the mixture is leaned out to obtain maximum economy, valve temperatures rise. The curve showing "Effect of Engine Speed" indicates that temperature rises rapidly as speed increases.

Eaton engineers will welcome an opportunity to discuss the application of Eaton sodium cooled valves to engines proposed or now in design.

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Turboprop, Allis-Chalmers experimental turboprop version of the Convair Line

control the blade angle at the engine below flight governing. In the flight governing region the actuator signals propeller speed through an other variable position switch. The electronic position switch applies to a variable pitch control which is turn change blade pitch to maintain constant speed. The constant speed is variable from 12,000 rpm turbine speed at approach or flight idle to 14,300 rpm at full power.

Below operation idle, power control and the propeller blade angle is controlled by the throttle position. At this time speed is controlled by a fuel governor. Since the governing moment can be left while the propeller is in flight, an operational step is provided by the engine manufacturer. This step is not to be pulled until the aircraft is on the ground or waterborne and then is pulled manually by the pilot on the XPSTY-1 and electrically by a selector switch. At take-off or landing the blade angle is automatically maintained. Thrust is cut and turbine speed is approximately 11,000 rpm. As the throttle is pulled back, reverse blade angles are set until maximum reverse thrust becomes available at 8° throttle quadrant setting.

Pushing is provided from a single throttle position by changing the jet (jet) engine's air flow. Manual feathering is available at the event of electric failure.

Operations. The operation of a turboprop powered in considerable regular than that of a reciprocating engine. A single power lever controls all the conventional engine controls including throttle, propeller, mixture, injection, and carburetor heat. The most important engine instruments required are the tachometer, fuel flow meter, oil inlet temperature, tachometer, oil temperature, fuel and pressure and harmonic vibration meter. The latter will be proved to be a valuable addition of integrated power section failure.

In the XPSTY-1 the prints are provided only with a tachometer and bar base and temperature for each engine, but the latter will be replaced with a temperature probe to indicate temperature to be sensed in flight.

The pilot is totally uninformed of power and fuel during take-off and the tachometer is his only means for determining this. Turbine inlet temperature is not a true guide of power.

The eight engines have a complete set of controls, but the engine can only be known the engine must remain silent. These are not normally used in flight. Normal engine controls include take-off and acceleration. The flight computer maintains turbine inlet fuel pressure, turbine speed, and fuel flow during take-off and advances the pilot mode if any occurs in flight.

Engines should be held during the climb for flight at the quiet stage. This engine normally remains silent for a quick check of fuel and speed controllers are compared generally with turbine performance, incorporating an operational idle check of fuel and speed schedules, and a full reverse check. The whole procedure is soon placed in a matter of a few minutes after bringing the oil temperature up to maximum levels.

Experience to date shows that damage potential may be taken with no damage to the large forward-mounted fuel and water out of the turbines. So end compensation have been severely damaged before normal.

It was soon found that ordinary Conair plugs were not suitable for the turboprop case as long connections immediately resulted in wobbling propeller blade angles during take-off. These prevented the pilot from properly controlling the airplane. After all non-metallic Conair plugs were eliminated in favor of straight-through insulation, the problem disappeared. The problem is being solved by adding a plenum chamber to the intake duct assembly, designed to prevent both foreign material and water from reaching the power section.

Early flights soon revealed during

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FIGURE 4: Front view of aircraft using SPS aircraft fasteners.

In Figure 3 occurs. In this case, the fast schedule was reluctantly off on the right side of the high climb condition, indicating the maximum thrust to be 1700 lb instead of 1800 lb.

The present prop design provides for a hydrodynamic low pitch step of approximately nine degrees; however, this blade angle is caused by the electrohydraulic governor which drives the propeller into a much flatter pitch when the speed is off schedule. As can be seen from Figure 3, the left feather agrees with the asymmetric thrust position, indicating that when the left feathered propeller will continue to increase drag as the stepped slope, as shown by following the 11,120 rpm line. At the same time the left outboard propeller is producing thrust, as shown by the 11,000 rpm line. Now, if a mechanical step is added at fifteen degree blade angle, the right outboard propeller will be held constant at 11,000 rpm at 16.5 rpm, since lower rpm speeds will cause turbine speed to drop and drag to be reduced. At normal takeoff speed of 1170 rpm, the asymmetric thrust would be 1600 lb if both propellers incorporated a mechanical step at fifteen degree blade angle, unless at 11,000 rpm the two propellers step down to the same level to be matched. The step after takeoff due to propeller damage thrust from locking up at the lower speeds.

Propeller synchronization should minimally assist the asymmetric thrust problem, and will be investigated at an early date. Any performance, however, will probably be unable to cope with large off-speed signals of a stall functioning propeller governor, as a mechanical low pitch step is a must.

• **Balanced Thrust.** The balanced thrust concept is a logical extension of one attempt to balance the XPSV-I just before breaking off thrust, the plane moved violently to the left and the left wing position dropped in

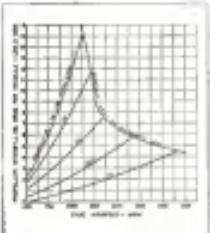


FIGURE 5: Thrust rating of XPSV-I during asymmetric thrust.

to the water. The take-off was aborted, and it was apparent that something was wrong in the left outboard motor. Reassessing the situation, the turbine wheel completely burned out in the left outboard motor.

During this take-off, the heading remained constant until climb speed was reached. Radar oscillation was normal up to that point to maintain a straight course. An right degree turn to the left was experienced going over the hump, which while unusual did not cause alarm because a gusty wind was blowing. This was corrected by rudder and the nose being lowered slightly. Then the aircraft turned to the left at 1000 rpm and the thrust was suddenly pulled back when the left rpm stepped up uncontrollably. Records showed that the left outboard engine started to fail at exactly the same time as the first turn to the left. Turbine speed was not affected until the aero ring to the left started simultaneous with a drop in turbine speed. It is presumed that the turbine wheel became unbalanced in this point, and the ring of the compressor stepped up, but it was not observed off the transponder. Once the other power unit failed, the propeller slowed as well. Analysis of the propeller speed and airspeed indicates that a burned out turbine wheel at take-off power creates at much or more drag as a propeller which is functioning both power settings.

A stabilizing engine is a distinct possibility during take-off, or landing, and today has not been discussed at take-off. This does a simple weight-shifting system is mandatory for both take-off and landing machinations. It is believed that the best means of achieving this is to install a double indicator to avoid negative torque and initiate a prop-feathering signal when it occurs.

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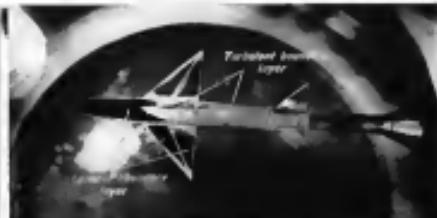
AN5440-1 16 MM. Immersion
Spiral-wire probe, type thermocouple
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from -196° to +1,000° F. Made of
copper-constantan and an 18 MM.
wire for other materials.

AN5440-3 Iron Constantan Type
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sheath. Probe is made of iron constantan
with thin phosphor bronze wire
which will retain its strength despite high
temperatures.

AN5440-4 Chromel-Alumel Type
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New Way to See Boundary Layer

How to see the invisible boundary layer on an aerodynamic shape in a practical way has been found in several ingenious ways by aerodynamic engineers. Recently, the National Advisory Committee for Aeronautics has added another technique to those available for the visual study of boundary layer, and it promises to dominate some of the shortcomings of earlier methods.

Most of these detection methods depend on the differences in response rates of liquids or human beings to heat and to the boundary layer. By heating a model and then passing air over it, the rate of evaporation in the different regions of boundary layer will cause parts of the model to dry before others. By proper techniques, these dry parts can be seen or photographed and the pattern of boundary layer distribution can be determined.

Chalk-Clay Method—One of the best known methods for boundary layer observation is the model chalk-clay method. Here a suspension of chalk powder is sprayed on the model. When this dries, the model is evenly coated with a smooth white absorbent film. This film becomes transparent when sprayed with a volatile fluid such as the same solvent of induction to the chalk clay. When the liquid evaporates, the film which again becomes visible.

An adaptation of the liquid film method has been in use at Ames Aerautical Lab. The model is painted black first, and then coated with a liquid mixture of glycerin, alcohol and a liquid oil detergent. Glycerin is the inducing agent, alcohol is a solvent for paper tape, and the detergent facilitates wetting of the surface. Visual indication of the wet and dry regions is obtained by placing a dry, transparent sheet of indigo carmine paper over the model. It is found that the model is covered with black powder, which adheres to the wet surfaces and blows off the dry ones.

Polymer Method—The NACA has developed with the aid of the Vought

Luminence Corp. of San Francisco, a different technique which involves the use of a liquid which leaves a luminous pigment. This paint has the property of fluorescence only when dry. Any shape which has been sprayed with the liquid and subjected to airflow, at first appears uniformly dark under ultraviolet radiation. As infrared heat from the sun begins to dry the paint, the dry areas begin to fluoresce (see photo). Like the chalk, a luminous condition may be maintained over the entire body wall by day and will fluoresce.

In tests performed so far, the drying rate has been slow enough to allow infrared photography and observation of the patterns. In some cases it has been possible to stop the wind tunnel and examine the model to make detailed study of the pattern which persists up to 100 ft for several hours.

A complete description of the technique,一起 with the necessary liquids and paint designations, has been published by the NACA as Tech Note 2263, *The Use of Luminous Lacquer for the Visual Indication of Boundary Layer Transition*, by Jackson R. Stidham and Ellis G. Shuck, at the Ames Aerautical Lab. STAFF

France to Build Bristol Engines

(McGraw-Hill World News)

Bristol, England—Bristol Aeroplane Co. has reached an agreement with France's Societe Nationale d'Etude et de Construction du Material d'Action (SNECMA) under which the French organization will manufacture Bristol Hercules jet engines in France. The company announced this.

The agreement covers the supply initially of substituted numbers of Hercules engines from Britain while the new production line is getting under way in France.



Douglas C-124

North American AF-1
Republic P-51

Common Denominator

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CYLINDRICAL CAGE at top of Folded Telecommunications Dish new attitude

High-Purity Polarization for VOR

Quality of signals from new cylindrical transmitting antenna eliminates aircraft attitude error.

An exceptionally high degree of horizontal polarization purity is the outstanding feature of a new type of VOR transmitting antenna developed by Teld and Telecommunications Division of the International Telephone and Telegraph Company.

The antenna, a cylindrical array of rods and booms, is well-coupled and can be rapidly deployed and stowed easily.

The addition of DME equipment, for which space is provided, makes the array a complete R/TACO transponder unit.

► Back-ground. VDF (VHF direction finding) was traditionally done by Civil Aviation Organization as a short-range navigational aid. In the United States, about 350 VHF omnidirectional stations are being operated by the Civil Aeronautics Administration.

Omnidirection requires the received phase of two radio frequency signals. One signal, the reference signal, is radiated at all directions with a constant phase modulation. The other signal is radiated horizontally at a period of 1800 rpm, so that at any instant bearing azimuth angle the received signal varies.

These two signals are compared in the receiver, and the phase difference between them defines the azimuth bearing angle of the system. (0° or another

angle, it defines the radial location of the aircraft with respect to the station.)

Both these signals are generated from a single rotating antenna rotator on one side of the antenna, containing the cables of a feed from the base.

► Necessity. The new antenna was originally referred to as a "lumpy" because of the obvious resemblance. The antenna consists of a cluster of vertical rods held by circular frames in a framework. The lower ring in the antenna proper that supports the cage is colored red as an identification.

Atmospheric noise produces the phenomena of polarization, polarization noise, and polarization errors in the aircraft attitude. Polarity is primarily a function when a pilot is trying to fly in straight & level. In banking flight the bank angle shows the pilot that he is on course.

He levels off to fly the heading, but finds that his reading has approached stability. He then tries again to infer the heading, but the reading fluctuates. This is due to atmospheric noise, which strength increases the course fading errors to zero, and with major reduction, the aircraft will begin to roll. The errors are attempting to fly 0°.

There is a material advantage, too. Within the cage structure, the rotating dipole would be about 8 ft long and difficult to rotate mechanically at 1800 rpm. The radiating dipole is only 10 in. long, and its electrical efficiency is unimportant. The cage acts as an electrical bus and induces the primary current in the antenna to rotate.

► No Antenna. With the new cage antenna, there is a lack of the need man-of-magnitude over the VOR antenna. The omnidirectional needle will not

have shaft, phase shifter between the carrier phase and variable phase signals is eliminated.

The reference signal is brought out of the bottom of the cage through a transmission line to the transmitter. Here it modulates the intermediate-frequency amplifier where supplied energy in the form of a "carrier" and "modulation" is obtained.

► Circular Radiation. The omnidirectional radiator is a circular disc mounted above the dipole. This radiator carries the reference signal and carrier station identification and omnidirectional tone transmissions. Electrical coupling between dipole and loop indicates the change in "carrier" and "modulation" methods.

Cage extension space is available for mounting a DME (Distance Measuring Equipment) and a transponder, as well. The addition of the DME antenna makes under the array usable a coaxial R/TACO navigation system.

When the antenna is stowed, two vertical rods on the antenna cage are replaced with X-band wave guides for feeding the beacon. The DME circuit can be passed through any of the vertical rods. And other rods may be used to carry power lines for the obstruction lights which can be placed at the top of the cage.

► Polarization. An advantage of the cage antenna is the purity of the polarized signal. There is such a high degree of horizontal polarization purity that no appreciable vertical attribute or noise are present in flying a course. And these errors are important—their ratio is high as 5:1, ranging from four times with earlier designs of antennas.

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► No Antenna. With the new cage antenna, there is a lack of the need man-of-magnitude over the VOR antenna. The omnidirectional needle will not

long back and forth when the plane is flying near the transmitter, but will stay dead on if the pilot is flying east/west. If he is a bit sloppy, the compass will show an arc of ambiguous signal, but this will be only at short distances.

Physically, the cage antenna uses three components in housing, wiring and controls.

The first part is completely adaptable to existing stations, as any replacement antenna should be. It is a one-piece unit which can be installed in considerably less than 24 hours, compared to the several days needed now to replace. The center housing for dipole and tone wheel is reusable from the range bottom for serving as a replace piece. And the housing need be done away from construction.

Development of the antenna was done by Federal for the USAF Air Materiel Command at Wright Laboratories, formerly located at Fort Monmouth, Red Bank, N.J. Federal is now in production for the Air Force on these six units.

Lockheed Builds Avionic Test Lab

Lockheed Aircraft Corp. has selected construction on a new four-story laboratory building representing \$1400,000 investment. The new research facility will be primarily for avionics work.

Antennas research will be quadrupled at Lockheed to solve problems of "re-coil" damage which stem from the increased aircraft speeds and the increased quantities of radio and solar energy in military aircraft.

Laboratories and test equipment for systems research will be on the top floor and roof of the new building. Augmenting these laboratories, a pattern range for checking antenna performance will be located on the second floor.

One floor of the building will be devoted to an environmental test chamber to duplicate atmospheric conditions up to altitudes of 75,000 ft—what Lockheed says is the highest altitude ever simulated in laboratories. Temperature variations from -100 deg F to 600 deg F can be staged in the test chamber, as well as wind speeds up to 100 mph, air pressure, ultraviolet radiation, and various such as atmospheric pressure, humidity, dust, snow, wind, and dust.

Equipment used in conjunction with the chamber will test performance and stability of materials under conditions of thermal shock, vibration, impact, acceleration and explosion.

The new laboratory is scheduled to be operating in the early months of 1952.

ARO meets your needs for PRECISION OXYGEN CHECK VALVES



HIGH PRESSURE

AM No.	Type	AMM Part No.
6014-1	A	9905
6015-2	B	9917
6016-2	C	9914
6017-1	D	9916
6018-1	E	9935

LOW PRESSURE

AM No.	Type	AMM Part No.
6030-1	A	9905
6031-1	B	9907
6032-1	C	9907
6033-1	D	9905
6034-1	E	9919
6036-1	G	9903
6037-1	H	9900

Newcomer in precision oxygen check valves is ARO, an abbreviation with AMI, Aeroflex and Perkin-Elmer, a division of AVCO. See also AIA-V-123.

These valves have been developed by AMI Precision Avionics Division, and are manufactured by Aeroflex.

Low Pressure Oxygen Check Valve. Constructed from Duralumin, these valves are designed to meet severe requirements. High Pressure Oxygen Check Valves come in sizes from 1/8 in. to 1/2 in. diameter, and are made of stainless steel and for maximum resistance.

ARO has the modern facilities and know-how—years of experience in the design and production of high-pressure strength products. Send for complete information. The ARO Engineering Corporation, Bayport, Ohio.



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BLOWER, PUMP, OXYGEN REGULATOR, AIR AND
HYDRAULIC SYSTEMS

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count on**

TORRINGTON NEEDLE BEARINGS



...for faultless performance and smooth anti-friction operation.
 ...for savings in machining time and costs. No grooves or shoulders are needed ... just a plain bare housing modified to proper dimensions.
 ...for fast, economical assembly. A simple orbital press operation seats the bearing by press fit. Spacers or retainers are not required.

And you can help your customers reduce maintenance. Needle Bearings require a minimum of service attention. Our engineers will be glad to help you put these and other Needle Bearing advantages into your product.

For more information about the study, please contact Dr. Michael J. Hwang at (319) 356-4000 or email at mhwang@uiowa.edu.

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NEEDLE - SPHERICAL BOLLES - TAPERED BOLLES - STRAIGHT BOLLES - BALL - NEEDLE ROLLERS

EQUIPMENT

Exclusive Report on Counter-Subversives

Guide to Equipment Overhaul Times



Martin 242



Berlin 2012



General



Douglas DC-3



Luxury Contractors

Equipment is winning control of aircraft from man. It is essential to successful flight. And it is big business. Maintenance and overhaul of that equipment is one of the airline's major expenses. Roughly 20 percent of all their expenses are in that category.

The military know equipment is important. Then are examining as much routes for equipment purchase as for airborne machine.

As a service to the industry, in response to repeated suggestions, Aviation Week presents the first and only compilation at any aviation magazine of the comparative overhaul times as known set by various airlines for similar components on all passenger transport aircraft.

- For **aerospace** **airlines** this report can serve as a guide to better overall performance. There is much to be learned from studying the distinctions and consistencies in overhead times for aircraft components measured on identical airframes flying identical routes.
 - For **aerospace manufacturers** this report serves as check-list to see how the equipment in their planes stacks up against that in their competitors' aircraft.
 - For **equipment manufacturers** this report is a valuable index to performance of their equipment as installed in their own aircraft, and for comparison of their product with that of their competitors.
 - For the **military services** that report can serve as a useful tool based on the experience of commercial airlines so they can better judge the strengths and needs of their own aircraft.

A lot of money can be saved if airline management take a long, hard look at the comparative times and bring about equalized overhaul times where practicable and desirable. Differences in operating cost factors, overhaul facilities and maintenance philosophies etc. and do account for a portion of the variations in times shown in the report. But not for all of them.

Equipment is important—surfaces are smooth or stretched to accommodate it. It can control an insect with greater precision than man. It is a keen detective in diagnosing faulty components. If it fails, results can be fatal.

NOTE: In the report in the following pages, each party involved in the test will receive a copy of the original equipment test results and a copy of the differences and both individual companies may present their methods. The first one or company as it was presented in the original equipment test report will be the one to be used in the final report. The second version will be the one to be used in the final report. The third version will be the one to be used in the final report.

Martin 2-0-2

Boeing 377

Convair 240

Douglas DC-6

Lockheed L-549.749

118 *Journal of Health Politics, Policy and Law*, Vol. 34, No. 1, January 2009

Lockheed L-49

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For Dependable Hose Connections

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and overall
ability of all parts
and materials
when applied
to clamps up to
12" for fuel and
other special
applications.
Tension may be
adjusted when hose is in place.



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NEW AVIATION PRODUCTS



Position Indicator

A new leading position indicator developed by the Riterade Metal Co. pots that company as the aircraft industry's manufacturing field.

The indicators fit each landing gear has three main parts, acting position. Separate solenoids indicate the "up" and "down" bags appearing in the end-coder disk as shown above. When neither solenoid is energized, the indicator is centered. Indicated by a bar with diagonal lines indicating a downward position, it is built of thin, fine-wire stainless steel wire. Address Riterade, Inc., Los Angeles 15.



Speeds Wiring Tests

The time it takes to test multi-cable electric cables in aircraft can be cut down in half by 50 percent by using a new test and repair system on the aircraft component carrier.

That's the claim made by Welch Electric Co. in its "Universal Cable Harness Tester." The unit, says the firm, meets specifications drawn up by the Air Materiel Command. It is specifically designed to check multi-cable ducted cables and wire aircraft radio, video, lighting, instruments, control and other components.

The unit either connects or cutting maintenance time and costs. It will accommodate up to six wire with the B-56 wiring in the engine now can be checked out in eight hours—instead of 500 hours formerly required to do the job, assure the vendor.

Overshoot of the limits, a possible trap is said to be quite simple. Cables are connected type of test selected, then each conductor is checked out in rapid sequence by turning a contact switch which rapidly indicates the conductor being tested.

The instrument is equipped with a pair of coaxial cable connectors for testing RF and control leads; a pair of 47-ohm resistor connectors and a pair of 35-ohm connector terminals.

For continuity testing, a full amper is passed through the conductors. If



...ULTRA-MODERN AVIATION FUELING

Cities Service joins with Eastern Air Lines
to inaugurate another great advance



A FEW PLAT-TOP FEATURES

NO BREAKS — All hoses have the cost of one break removed, with no need for hoses to be spliced.

SHRINK CAPTIVITY — Removable hydraulic hoses from smaller engines, air plane pumps, or high speed fuel pumps, keep prime power fed over from fuel tanks.

PLATE LADDERS — Hoses from the plates on gasoline, kerosene and insulation tanks, located in planes, will hold their shape longer. No need to worry about hoses to cause injury or damage.

SMALL TANKS TO REFUEL — This is another feature that adds to safety, simplicity and economy. The debate over size of tank and labor with this extremely efficient tank crack equipment.

Hot Diapole Control

Lateral hot diapole control on the market in the "Automatic Flight Control Center" developed by Assembly Products, Inc., Chagrin Falls, Ohio.

Keying simplicity, the company has designed the unit with two "hot diapole" doors, each having a switch for each section of the diapole. Each has an air contact for regulating heat of the door and a low heat contact for safety shut-off. Controls permit adjustment to any setting through a temperature range from 350 to 700°.

No memory tubes are used in the instrument. It is suitable as a single unit for control of individual diapole machines or as a "Polyport" model for independent control of a number of machines.

Rugged Switch

Melvin Corp. reports it has developed a precision switch with a new diaphragm configuration which offers extremely high frequency selection in counter or vacuum circuit and rocket engine applications.

The Plat-Tops are on duty now—making mobile service smooth. With these remarkable new tank trucks, Cities Service is fueling Eastern Air Lines planes at LaGuardia, Newark, and Boston's Logan Airport. Never before has there been any approach so safe, speedy, convenient fueling now made possible by Cities Service Plat-Tops.

You'll be impressed in major Plat-Top features listed here. Each one adds evidence that Cities Service is in the forefront of aviation progress. That's why fields offering Cities Service products are winning performance today, among those eager for top-notch quality and service.

CITIES SERVICE



AVIATION PRODUCTS

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CROUSE-HINDS WIND TEES

INDICATE THE

CATE THE
Best Landing Direction
DAY and NIGHT

DAY and NIGHT



Remote Operator Control Panel



Gesamtausgabe, Band 10
Herausgegeben von

Cross-Wind Tearing is considered stationary and slight variations of wind direction or speed being dismissed. It may be furthered either EWD (single wind) or SWE (two wind axis) as well as numerous variants of complexe combinations as considered for a specific situation.

The word *ice* gives the appearance of a simple -T when viewed from above at night and a single stroke yellow -T when viewed from above in the daytime.

- Standard Free Floating Wind Tree**: **Position Indicating Transmitter:** This model only to have a single static yellow T when viewed from the front. **Standard Free Floating Wind Tree with Position Indicating Transmitter:** This model only to have a red S. **Position Indicating Transmitter:** The transmitter is mounted on the top of the tree. It has a small red LED light which will flash periodically to indicate the wind direction.

with either positive or negative feedback.

- Wind Tee with Operator Control and Sensor Positioned Indicating Transmitter**: The input to indicate operator control when wind velocity is below rated velocity. When wind exceeds the rated velocity, motor is automatically disconnected from the shaft and the fan starts freely without causing damage to the tee or impeller. Tee is complete with safety position indicating transmitter.

Considerations Wind Cope and Wind Tree: It is always desirable in trees or woods to provide a windbreak if a wind is blowing. The wind cope is relatively immovable and therefore wind velocity and tree growth direction of concern. The condition of the wind tree is more variable and depends on the degree of moderation by the no-wind areas. If the wood cope and wind tree are located adjacent to each other on the ground, the piled mass of the trees is sheltered by the wind cope as a consequence. Where the wind cope is situated between two wind trees, it will probably not exactly determine the best shading directions and affect the actual behavior of the winds.

Special Features: A shadow mechanism, and controllers are added to the wood bee circuit to provide operation of the lights either steady burning or flashing. Red lights may be furnished as an addition to the green lights on the wood bee, which is sometimes desired for traffic control.

若有附加說明請敘述。

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NEW *
CLASS H
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The insulation that has already served industry millions of maintenance dollars plus the hourly output of hundreds of thousands of men.

This most timely announcement caps the test program we started 8 years ago when silicone resins were introduced by Dow Corning Corporation. First we proved by accelerated life testing that silicone insulated motors had a good 10 to 7 advantages in life expectancy and cost per hour of operation. We also proved that Dow Corning is the manufacturer of electrical equipment insulation. From left brain and right motor to balanced and harder coils. We then encouraged the better reward shops to rebuild hard working industrial motors with Class H insulation.

Now we can proudly refer American industry to the quality list of electrical manufacturers, oil refineries and mining to supply electric machines protected by Class H insulation made with Dow Corning Silicones.

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"Class H" insulation is the kind of insulation that keeps motors running in spite of "Wall-to-High water." Simplex division.

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 In Canada: Electro-Corona Ltd., Toronto. • To Great Britain: Midland Silicones, Ltd.

less than 1 amp passes, a pilot light indicates "open circuit." A separate light indicates a closed circuit. As an insurance measure, checkouts every 2 minutes but the one being tested is bypassed and 1930s dc applied. Leakage is positively indicated. Resistance is measured in megohms. The strainmeter is designed also for insulation breakdown tests, prior to power should not be applied to the wire or part of the wiring system and under work.

The device has lagging type handles, weight 62 lb., dimensions 14½x9½x10 in. Manufacturer's address is 1212 White St., Cincinnati 14.

Terminal Seals

To be assured of positive, permanent sealing of electrical terminals used in the presence of gases or fluids, Franklin C. Wolfe Co. advises use of its rubber "Torsion D Seals."

They are designed to prevent entry or escape of fluids or gases, depending on the application. The sealing gaskets are made of neoprene for ambient temperatures ranging from -67° to 122°F.

Each "Torsion D" seal is rated for temperatures from -67°F. to 122°F. The "Torsion D" Seals, complete with tools and instructions, are available for high frequency applications and voltages up to 12,000v.

According to the company, the method of sealing is based on the principle that rubber relaxed from pressure tends to return to its original shape. Actually, the sealing gland is a rubber ring compressed into a square section. The resulting configuration creates maximum recovery tension with a minimum of rubber volume, says the firm. Address: 607 Commercial Center Building, Hillsdale, Mich.

Packing Case Hooks

To speed loading of heavy cargo and to save handling costs, Nelsen Wheel Co. is marketing a lift hook which is bolted right to the packing case at a prearranged location.

Now instead of wasting time hooking the load prior to lifting, the hooks on the load prior to attaching on the fastening dog, consolidate and the load rapidly loaded away. Nelsen says its hooks is the only one officially approved by the Air Force for engine packing cases.

Four hooks used for a single load are designed to lift 20,000 lb., says the company. General Electric Co., however, has established the breaking point for a single hook of this type at 13,000 lb., Nelsen says. They are made of alloy steel, heat treated and case plated. Address: 1514 N. 12 St., Milwaukee 5, Wis.

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These new 1951 Chevrolet trucks are tops in value. They're rough and rugged. They're loaded to the hilt with power. They're thrifty . . . move massive loads . . . handle like no other truck. Chevrolet's latest leaders have 3½ tons new features, too. Features like new, super-effective brakes that are extra-safe and easy to operate. Features like Chevrolet's Dual-Shoe parking brakes. Chevrolet's new Vee-pans and new cab seats that bring you comfort with a capital "C." Visit your Chevrolet dealer and look over these great new trucks. You'll find the right truck for your job!

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TWO GREAT VALUE-IN-HEAD MODELS—in the 1951 Chevrolet line, the 1951-2000 Diesel models give you greater economy and more power per load. • POWER JET CARBURETOR—• for smooth, quiet acceleration response. • HYDRAULIC BRAKING SYSTEM—• for complete, unquestioned stopping power. • DUAL-SHOE BRAKES—• for better handling. • DUAL-DECK BOXES—• for greater front loadability. • SUPER OVER-LOAD PARKING BRAKES—• for greater holding ability at heavy-duty speeds.



TEMCO Modifies C-54 for Air Evacuation

Modifications by TEMCO of the Douglas C-54 transport into flying hospitals for the Military Air Transport Service is proceeding at top speed. Developed as the C-54 M, it was developed for the rapid evacuation of sick and wounded personnel from overseas bases.

These planes were previously used as the Berlin Air Lift in 1949 and more recently as dip aircraft to our troops in Korea. Designed to provide absolute hospital facilities, these planes can bring patients to any part of the world, they can be quickly converted into troop or freight carriers.

Features Greater Comfort and Better Medical Care

Nothing has been overlooked to make these planes comfortable for the patient. They are equipped with 1200 beds in four bays of four each on each side of the fuselage. All of the bays in a gallery, a "service" corridor, exhaust and complete tail facilities. The aisle in the middle bays is six feet wide. The floor of the rear half of the fuselage painted with a several solid heat resistant white layers. Automatic compensation and a second oxygen system are significant among the many features which make for comfort in these new flying hospitals.

Production Line Overhaul is Unique with TEMCO

TEMCO has developed methods, modifications and conversions on a production line basis to a point where it is the country's outstanding engineer for this type of work.

Nearly five hundred Air Force transports have been converted and modified in the last two years. TEMCO crews have fabricated over 1800 parts interchangeable with the original parts. Many planes destined for the scrapheap have been rebuilt by TEMCO and put back in service.

TEMCO to Manufacture Assemblies for Lockheed P2V Neptune

TEMCO has started work on an advanced quantity of major assemblies for an advanced version of the Lockheed Navy P2V Neptune patrol bomber. This is the plane made famous by the Navy's "Tuskegee Airmen."

TEMCO

ENGINEERS AND MANUFACTURERS
FOR THE AIRCRAFT INDUSTRY



CONVERTS COAL CARRIERS TO

Flying Hospitals

Hospital accommodations comparable with the finest medical institutions are now available for the care of sick and wounded military personnel anywhere in the world. Carefully designed for every comfort and care including such luxuries as automatic dispensing, the planes are capable of carrying 22 patients plus a medical crew of three. Formerly coal carriers on the Berlin Air Lift these planes are just a part of over 500 C-54's converted, modified or overhauled by TEMCO in the past two years.



textron engineering and manufacturing co., inc.
DALLAS, TEXAS

Code Tape

Electrical wiring, bus leads, meters, other parts and other components in an assembly can be easily identified through use of Labeled continuous sensitive tape, made by Teflon Tape Co., Rochester, N.Y.

Any part number or code designation can be written or typed on the tape before it is applied to the part to be identified. The material has "built-in" writing qualities, depending mainly on pressure. A seal could be used; for example, to enclose sharp colored numbers or lettering. This provides a label which cannot be affected by water or oil, that is aadhesive-proof and resistant to acids and verifications, says the company.

The tape is designed to adhere at temperatures from -40 to 150° F. It is made of two layers of acetate with a white, wavy substance and wicker between, and can be moved from one surface to another repeatedly without leaving a sticky residue or destroying its adhesive qualities, according to the maker. The tape is available in various widths and lengths and particularly is being used in large quantities by the Air Force.

Limit Drive Load

Type AYLC torque limit actuator now being marketed by Barber-Colman Co. is designed to stop operation when load on drive part exceeds rated capacity.

These units are claimed to give positive, accurate positioning and are suitable with a wide range of gear reductions from 1:1 up to 500:1. Travel from a low speed up to several thousand shaft revolutions is possible with no adjustment.

Designed to meet all applicable AN specifications, they can be supplied with various mounting arrangements as desired, different types of drives and with or without built-in safety filters. Address Rockford, Ill.

ALSO ON THE MARKET

Angle new guides, for standard "Dural" brand wire of 16- to 80-gauge, throat or party, enable 45° visibility to cut work of as much as 15 in. diameter in any length and desired angle. Made by Dural Co., Des Plaines, Ill.

Plow-type toggle clamp is hand tool designed to provide positive holding pressure with firm toggle locking action. Unit has forged steel jaws and handles, weighs 5 oz. Detroit Stamping Co., 300 Mayfield Ave., Detroit 3.

TEFLON



AMPHENOL

CABLES

AMPHENOL coaxial cables made with Teflon dielectric have low loss and perform satisfactorily at temperatures as high as 500° F. Covering the Teflon dielectric are two silver coated shields and two wrappings of Teflon tape. The jacket consists of two fibre glass bands impregnated with silicone varnish which is oven baked to provide maximum moisture and abrasion resistance.

CONNECTORS

Because impedance specifications of Amphenol RF Connectors can be depended on, no loss tolerance is inserted, nor is the standing wave ratio increased. Amphenol RF Connectors meet the exacting requirements of laboratory applications—have longer lead-in paths, lower loss.

The 63 series connectors illustrated are weatherproof type RF connection for use with 50 ohm cable. These connectors have 1000 volt rating when used with Silicone Compound and may be used with 70 ohm cables when impedance is not critical.

The 69 series VSWR connectors illustrated are low cost general purpose connectors ideal for laboratory applications. Not constant impedance, but suitable for general RF transmission below 100 megacycles.

Teflon inserts are standard on the connectors illustrated and will be supplied with any AMPHENOL RF connector on special order.

AMPHENOL

AMERICAN PHENOLIC CORPORATION
1834 SOUTH 54th AVENUE
CHICAGO 30, ILLINOIS

PRODUCTION



INTEGRALLY STIFFENED skin section forged in one piece on Wyman-Gordon's 12,000-ton Meissner press; weight per unit area made of 25 individual parts.

Tests Show Value of Press-Forging

Lockheed and Wyman-Gordon complete preliminary study on forming integrally stiffened structures.

Lockheed Aircraft Corp. and Wyman-Gordon Co. have finished their USAF development partner called for pre-tentative investigation of press-forging methods of manufacturing integrally stiffened structures. Now they are negotiating for a contract to study the method further.

William Schaefer of Lockheed's engineering staff tells Aviation Week he is confident present work can be expanded greatly with additional research and more and bigger machines. Not all the problems of press-forging are yet solved, however.

What the engineers are doing is to prove the press-forging process can be used profitably with additional research and more and bigger machines. Not all the problems of press-forging are yet solved, however.

Now the big question is: What are the most pressing problems? The only one these big enough to press-forging parts is Wyman-Gordon's 12,000-ton Meissner (The Germans used a 30,000-ton press)

biggest machine) will be forthcoming. The program calls for preliminary design studies, tooling, and other support work. The program's cost is estimated at \$100,000 for research and \$25,000 for parts and a grant of \$5,000 from the Air Force. The budget is \$100,000, and construction probably is several years away.

When these machines are built and the press-forging process perfected, Lockheed engineers think integral stiffened girders can be put into forged in one step weighing 10 to 15 percent less.

What the Boeing-Douglas-Hawker-Siddeley's program to date.

When they started two years ago, the forging of integrally stiffened structures seemed highly impracticable because of

the extremely thin skin thickness required. First trials consisted of forging panels two feet square from round billets. These panels resulted in failure of the skin by deflection. Next, plates ranging in thickness from $\frac{1}{8}$ to $\frac{1}{4}$ in were pressed and final skin thickness of 0.05 in. reached.

Other tests consisted of attempting to press thin hypar panel to that minimum thickness, but because of the lack of sufficient pressure it was not obtained. For example, a 146-in. plane 304-in. thick was pressed to a skin thickness of 0.05 in. Ultimately a skin sheet was pre-forged to desired shape, then in the final forging operation reduced to 0.05 in. with vertical legs as much as one inch in height. Biggest panels attempted were about 5 x 6 ft.

► **Press Problems:** The first big problem the engineers located early in the investigation was related to press-torque—machines worked much greater than anyone imagined when the program was begun. This was another reason for accelerating the Axivane program.

The other problem was that of the skin and bed deflections which resulted in minimum skin thickness. This has not been satisfactorily solved yet, but Schaefer points out the process is progressing.

For the summer, Lockheed believes it is more economical to forge skin than to finish it later. One reason is that forging skin that will produce a part to finished contours is more expensive than skin producing only a flat blank. Also, as long as the non-uniform skin thickness problem is with us, the press-forged parts are going to require considerable machining.

Another problem is machining for design accuracy at joints and other areas where skin thickness would be most difficult in a forged part than in a flat. Also press-forged parts require a certain amount of machining after extrusion, as with all forging processes. With better press-forming methods, less machining will be required.

► **Press Forming:** Fortunately, the strength of the material, such as 106 and 718, as well as the newcomer to aircraft titanium, lead themselves well to hot forming techniques. And, by hot forming heat and tensile strength and spring back are eliminated. Higher bends are obtained with a corresponding reduction in weight and for the very note-skinning allows, the tendency to crack is avoided.

Lockheed learned that press-forged parts, like other types of complex stiffened structures, must be carefully designed. A typical wing panel weighing 74 lb. in its original condition weighs only 58 lb. in an aluminum alloy forged. If forged later, weight would be 66 lb. With post-tensioning the weight of the press-forged



JOY AXIVANE® AIRCRAFT FANS warm airborne troops before take-off

To protect our airborne troops in flight areas before take-off, Joy AXIVANE Aircraft Fans are installed in these large troop-carrying aircraft bound aloft from the main cabin while the plane is on the ground. Ram effect is utilized for this purpose after the engine is shutdown. Air from the fan is mixed with a controlled stream of air from the base to provide the desired air temperature on the deck. Thus, cold weather is no hindrance to the fast, efficient transposition of our fighting men to any theater.

This highly-efficient 1.5 H.P. fan produces 1100 C.F.M. at 5.31 static pressure, yet weighs only 22 pounds and is only 5 $\frac{1}{2}$ in. diameter. A & N design specification. Superior features of all Joy Aircraft Fans are compact design, shock-resisting strengths, maximum operating noise, and the most favorable air flow-weight and electrical-wire power ratios.

● Joy designs and builds units to fit the exact requirements for which it is intended. Each fan, distributor, or cooling equipment is specially designed to meet your needs. Units may be supplied from the extensive stock already designed. Stock units and many other units available. Optional features include straight or flared bases, bladed or flanged connections, radio-controlled, solenoid, and timed motors where required.

★ ★ ★ ★ ★
Here are some of the many uses for Joy AXIVANE Aircraft Fans: Windshield heating, cabin heating, cable ventilation, cockpit heating, cooling radio and electronic equipment, cooling voltage regulators, oil cooling, gear-box cooling, instrument cooling, air compressor, and high-altitude pressurizer heating.

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Every new SPEED NUT design is worked out on manual presses to provide samples for testing and approval BEFORE blueprints of the part are drafted.

STUDY THIS DRAWING before early experimental samples are turned loose because Tinnerman engineers understand the design process.

A design is tested and tested only a rough draft is a guide. Over that process, bend, turn and stretch from thousands like those illustrated above. They are set up on a series of manually operated press to design best of tensile and fatigue engineered for specific housing function. The complete product has strict guarantees of the tested features, and can be used for mock-up assemblies.

These parts are drawn tested and approved by the customer before blueprints are drafted and the finished part into production.

In turns like these, high-speed former engineers save valuable production hours and prime dollars. Post at Tinnerman's library or serve you as outlined in a new 10-page booklet, "A Story of Quality." Write for your copy: TINNERMAN PRODUCTS, INC., Dept. 12, Box 500, Cleveland 1, Ohio. In Canada: DOMINION FASTENERS Ltd., Hamilton. Danvers Air Associates, Inc., Somerville, New Jersey.



TINNERMAN
Speed Nuts[®]

FASTEST THING IN FASTENINGS

process except year after, Lockheed is going with other methods of making the interlocking stiffened structures, particularly rolling on a machine. Lockheed plans to spend between \$150,000 and \$400,000 for one machine to roll wing and fuselage skins with surface stiffeners from aluminum billets.

► Present Use—In addition, Lockheed is continuing partly its application of integrally stiffened structures. The F-94C will have the uniquely stiffened panels from the leading edge to the aileron root from the nose to the rear well section of the wing. The newest Constitution will roll all the assembly lines now will employ integrally stiffened skins over most of fuselage area.

An another example, the Navy wants to hang jet nozzle 1600 lb. of skin mass gas on the P3V. That means Lockheed engineers will have to trim the weight out of the structure of the engine and that of course cuts the ratio, weight-saving integrally stiffened structures.

Reynolds To Manage Adrian Pilot Plant

Management of the \$20 million government-owned USAF Manufacturing Methods Pilot Plant, Adrian, Mich., has been taken over by Reynolds Metals Co. from the Goodyear-Meridian Co. The facility, which will be operated by Reynolds on a salaried, no-profit basis, will be used for developing, testing and evaluation techniques and the proving of theoretical designs on light metal parts for aircraft of advanced design.

Facilities at Adrian have already been used to work out problems of a number of large firms. One major instance was the development of Concorde flight control system on extended interestated propeller blades (Aviation Week, Mar. 19).

Equipment already in the plant consists of 11 hydraulic presses, one of 500-ton capacity. Other models range from 350-ton, three-1750-ton and four 1650-ton presses. New being installed are four forging presses brought from Claymont, Del., and adapted to the J. G. Fisher Co. site, which has a capacity of 15,000 tons. The others are of 700, 1000 and 600-ton capacity.

California High In USAF Awards

California was gung ho in front of every other state in winning government competitive and unclassified USAF contracts awarded between Nov. 15, 1950 and Feb. 15, 1951, as listed in the privately published quarterly, U. S. Bell Informer.

The aviation center is listed as having

Always first



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by **Swedlow**



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This superlative weapon in the arsenal of democracy is a masterpiece of precision manufacture. Every component part must achieve a peak of precision worthy of the great role the Convair B-36 is to play in our armed forces.

SWEDLOW was selected to produce the laminated acrylic enclosures for the B-36 because of a long record of leadership in acrylic fabrication, specializing in aircraft applications for the Air Force and Navy of the United States.

• It has over the industry and improved fuel cell holdings in accordance with applicable Air Force, Navy and customer specifications.

**Swedlow
PLASTICS CO.**

LOS ANGELES, CALIFORNIA - YOUNGSTOWN, OHIO

gotten \$79,812,876 in AF awards, came-up strong. Michigan (\$8,266,493) and New York (\$31,237,799) also, however, were credited with the largest number of received contracts, 173, with California and Ohio trailing with 155 and 168 respectively. A total of 21 states are listed in the directory as having gotten no competitive and unclassified USAF contracts in this period. Four of the states—Arizona, North Dakota, South Dakota and Wyoming—did not participate at all in the unclassified awards listing.

Aircrewmed USAF contract awards in order of total dollar value are as follows:

- Calif., \$191,872,476
- Mich., \$11,266,493
- N. Y., \$11,237,799
- Ohio, \$11,201,811
- N. J., \$1,150,895
- Ind., \$10,441,481
- Fla., \$7,490,719
- Tex., \$3,129,118
- Minn., \$1,129,171
- Conn., \$1,049,961
- Ill., \$1,681,116
- Mass., \$1,312,096
- Md., \$1,087,291
- Wis., \$1,045,585
- Mo., \$1,041,277
- Wash., \$1,039,394
- Miss., \$179,378
- Ky., \$104,695+
- E. I., \$444,615
- Wash., \$172,164
- Neb., \$165,313
- Okla., \$147,978
- Ark., \$111,158
- N. C., \$95,371
- Iowa, \$71,159
- N. H., \$41,715
- Va., \$41,021
- Del., \$14,561

Boeing Plans More Equipment Spending

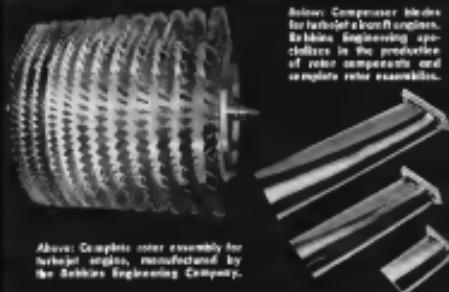
Boeing Airplane Co. will spend \$25-million for new machinery and equipment at its Seattle and Renton, Wash., plants, in addition to orders totaling \$4-million already placed for missile, truck and mobile equipment, President William M. Hart announced.

New buildings may be required to house some of the equipment. The Austin Co., engineering and construction firm which built Boeing's main Seattle plant, is evaluating various in conjunction with Boeing's plant engineering department in determining the building needs. The firm says it has been considering construction of a flight test runway at Boeing Field since the start from its main Seattle plant.

The expansion program has been brought about by production rates for ten B-52s and the acceleration of work programs already under way.

Jet Compressor Parts

Below: Compressor blades for turbojet aircraft engines. Robbins Engineering specializes in the production of rotor compressor and complete rotor assemblies.



Below: Complete rotor assembly for turbojet engines, manufactured by the Robbins Engineering Company.

Machined and Assembled to Rigid Specifications

The machining of jet compressor parts and the assembly of complete rotor sets require an organization having specialized tooling and inspection equipment and plenty of aircraft know-how. Turbojet engine builders are enthusiastic about the work of the Robbins Engineering Company, a subsidiary of Ex-Cell-O Corporation.

The Robbins organization is co-operating whole-heartedly with the program to build up air power for the defense of our country. All its efforts will be directed toward this end in the present emergency.



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Allen and. These programs include the production of B-52s and C-90s and the modification of B-52s and B-50s. The present modification contract is as yet to be completed by June but new orders are expected.

Deliveries of equipment already ordered will begin in April. Some of the 4500 machines and tools on order include a 700-ton hot hydro press casting 150,000 lb, a 100-ton Kello rolling machine, 16x16-ft., \$14,000; an automatic lathe to handle sections up to 9x13x13-ft., \$180,000; automatic contour milling machine, \$90,000; two 15-ton overhead bridge cranes, \$47,000.

Ordnance Exhibits For Industry

Taking off one hour the lightly ing coastal exercises which the USAF ran in New York during February to attract small business firms to the continental defense subcontracting (AVIATION Week, Mar. 15). Army Ordnance is not faring up somewhat similar displays at its 14 offices throughout the country.

Ordnance exhibits will include samples of representative components of firearms and other material: display boards, photos and other essential data illustrating information pertaining to Army safety needs.

A further purpose of the shows will be to emphasize that Army contracts are negotiated at the Defense office and not in Washington.

PRODUCTION BRIEFING

► **Avionics Corp.**, Jackson, Mich., has purchased all the outstanding stock of one of its manufacturing subcontractors, Metacal, Inc., also of Jackson. The new association will continue as a sole supplier. The parent firm is negotiating for lease of a large plant in Cheltenham which will house that triple parent Metacal, Avionics Corp.

► **Boeing Airplane Co.** employment at its Renton and Seattle plants has passed the 25,000 mark, with a continuing need for many tool designers and production planners. Pratt & Whitney has hired a 30,000th worker, a mere 3000 recruits at the past 12 months.

► **Ontario Hydro-Electric Co. Ltd.**, has been purchased for over \$1 million by Sperry Corp. of New York and its Canadian subsidiary, Sperry Gyroscope Co. of Canada Ltd. The facility will be used for sales, service and repair of



What right, Kishiboo, the safety boy says as he signs, and an usual looking plump of snar!



That was it's shoulder harness, those regulation loads doesn't keep a pilot from folding up like a Parker Pen if he crashes.

Save your safety belt will reduce the danger of an accident, but it can't hold a candle to shoulder harness when it comes to overall protection.

Now, let's concentrate you steering-wheel focus on the leading winning a shoulder harness. Gripe would like to know, look out the door when CRASH?

See—what did we tell you? Instead of crashing up like a two-bit politico, you just sit there and let the harness take up.



BEFORE TAKE-OFF BE SURE
YOUR FUEL LEVEL IS IN 'ON'
POSITION...



OR YOUR FUEL SUPPLY WILL
SUDDENLY CUT OUT,
EVEN THOUGH YOU HAVE...



SPURT!



A TANKFUL OF THAT
SUPERPOWERFUL GULF
AVIATION GASOLINE!

Gulf Oil Corporation . . . Gulf Refining Company

part of the shade. And, since, Terri, you had a stiff against the sun instead of bumping against the ramrod post. Hey, Terri, speak to me!

But all kidding aside, should it happen, see what the outcome of a good many mishaps!



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Put your engine valves and rings back the only avenue of part through Gulf's six stroke driver. Ask for prices to ensure these engines and their drivers do their best.

Developed Why, because, is Gulf Petroleum Corp.—Stearns Division—these prices breed because controls up to 3000! Yes, 3000!



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Even though the forest of demand for TMI stainless steel tubing is plateaued by the fever of the national emergency and inflationary extraordinary requirements, TMI places its prime emphasis on the fundamental resources which are responsible for its steady growth. Before Kompt's Constant Quality and the Ability to meet Delving Deadlines. These are the "trees" ... and your quality too.



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The company's products in Canada, along with Lewis and Koskinen products.

Lockheed Aircraft Service facilities at Burbank, performed 541,366 work hours on 352 aircraft last year, with military work accounting for 65 percent of the total.

Midgley Co., Inc., Los Angeles, sheet metal workers, is setting up a Metal Working division to contain 50,000 sq ft for handling aircraft subcontracting. It will have 100,000 sq ft, aluminum, stainless alloys and magnesium parts and sub-assemblies.

► North American Aviation has set up an "team while you learn" school in Inglewood, Calif., to indoctrinate new employees in aircraft assembly. The school can handle 70 students, many there simultaneously. NAA's engineering staff numbers 4500, highest in firm's history.

► Warner division of Clinton Machine Co., has completed new manufacturing facilities for hydraulic units at 21155 Crossland Highway, E. Detroit, Mich.

► General Aircraft Supply Corp., Detroit, has added 3000 sq ft to its warehouse facilities at Detroit City Airport



Torque-Limit ACTUATORS

Torque-Limit Actuators automatically stop when the end of the stroke of an aircraft component is reached. Overload damage is prevented. Limit switch can be replaced by a switching mechanism which de-energizes the motor when the load exceeds a set value. Torque-Limit Actuators also have all the other distinctive features of Barber-Colman Actuators — light weight, durability, quality construction, high torque with low power input, conformance to all applicable specifications — and are backed by skilled engineering services.

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ENGINEERS NOTEBOOK

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The clip support above incorporates a similar purpose except that it holds hydraulic lines further away from the strut and provides a lighter assembly with slightly less strength. Its use may be preferred where much access is required on one side.



Throughout the airframe structure big and clip supports find many applications. Line support clips, wiring harness clips, attachment of ducting, are just a few of the many light-duty installations for which they are suited.

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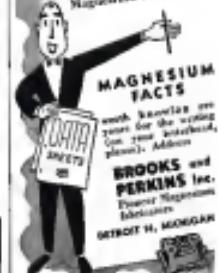
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The total of 400 big new standard-type transports should more than double the present commercial type airfield potential.

CAA Certificates

Douglas DC-6B

East African Airlines has chosen the Douglas DC-6B for commercial operations in the major type certificate awarded 4-6-68, clearing the way for early delivery. The Monstair carries a gross weight of 100,000 lb, and leading gross weight of 35,000 lb. The certificate was granted after Douglas agreed in addendum to the wings in the place would meet CAA still regulations.

Following close on the heels of the embroilment was notice that Western Air Lines, Inc., 25 years ago purchased the first 100-MJ aircraft from Douglas and ordered 100 of the big new DC-6Bs at a cost of more than \$1 million. W. M. will begin taking deliveries in September, 1962.

The latest order boosts Douglas DC-6B orders to 515 planes. America, 17; UAL, 32; TWA, 32; NAL, 2; Pan American, 2; Canadian Air Lines, 2; KLM, 1; South African Airways, 1; CAAC, 1; United Airlines, 1; and WAI, 1.

United and American are taking the final deliveries, but for end-of-contract.

CAA had refused to certify the DC-6B because the agency claimed the plane's powerplant stall characteristics were not up to requirements. CAA test cars said that unless the engines, and with them all the gear down, the plane tended to roll as it stalled. Then it would pick up speed in roll-down attitude and lose considerable altitude before recovery. Douglas claimed that the was a "probable" effect, not the actual stall effect.

Final stall warning on the DC-6B is

when the nose drops about five degrees, then recovers with virtually no altitude loss. Douglas considered this characteristic to be the stall and claim that CAA based its objection on what Douglas did not actually do.

Senate Unit to Study Foreign Air Subsidy

Senate's Interstate and Foreign Committee has established a subcommittee to investigate the foreign governments' role in the operation of their national airlines.

The committee has assigned a committee with a maximum salary of \$5000, to Aviation Advisory Service of New York, of which Bill Albrecht is the principal, to gather initial data on the subject. A former member of the executive staff of Civil Aviation Board, Albrecht served on Kansan committee in the Congress. He is a former Peter L. Drury in 1955. Dr. Oliver J. Longenecker, associate professor of law at Columbia University and author of "International Air Transport and National Policy," will collaborate on the undertaking. Deadline for the study is July 15.

In awaiting the contract, Chairman Eds (Johnson) and Committee Committee wants "a thorough exposition of the various routes direct and indirect, to other foreign governments, to note the spending of their national budgets" in maintaining subsidies of subsidies from mail for U.S. carriers and foreign carriers.

"We want to know how subsidies to foreign carriers affect the competitive position of our lines," he commented on the question.

Johnson has long been skeptical of the advisability of expansion of S international routes. One reason is that in a short time he told Aviation Week, it may open the way for foreign carriers. themselves removing government support to "be critical of our lines in this area."

The committee will consider the viability of establishing the Universal Postal Union rate of \$7.50 as the compensation and pay with additional money to be paid by the post office.

For instance, CAA reports that in the fiscal year of Jan. 1, 1961, U.S. carriers received the following and per ton per mile: British \$21.45, Canada and Southern \$44.16, Northwest \$2.81, Pan Am \$10.69, Pan American \$2.49, Trans World \$1.54.

New Airport Opens At Gundalajara

Mexico City—the finest airport in Mexico has been placed in service at Guadalajara, near the Pacific coast. The

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Super Constellation



Photo Courtesy Lockheed Aircraft Corp.

Working in cooperation with Lockheed, Hartman engineers designed and developed the control units (illustrated below) to provide reverse current and under-build protection for the Constellation's 253-volt system.

A 7200 Reverse Control and Fault

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STRICTLY PERSONAL

TO WHAT END?—Delta-Via Flights reports CAN's Head Hackster's stood by its acquisition as to advisability of changing out national administration: "It's ALWAYS poor policy to change horses—or say part thereof—in mid-stream."

ON RYE OR ALCLADE-Ex. Van Fluges says Stan Tagle, Chairman of the ANC-23 Party, plans to read several copies of the new ANC 13 bulletin, "Seaboard Construction," to C8I. For those who haven't been using their alphabet map lately, C8I means Government Services, Inc., the outfit operating the government

ANNA KNOWS HER PENTAGON—Discussing "seniority" in Washington, as we sleep over, we enjoyed Assistant Defense Secretary Asst M. Rosenberg's point the other day that the Pentagon is super-happy. She told a House committee she couldn't give them military defense figures because they were "classified." When Chairman Cap Weintraub and they'd been pressed "to hand over," Mrs. R argued and said, "Sometimes I think we classify last week's newspaper." Mrs. R might be wrong. Southeast Asia the Pentagon got the press and its contractors to sell him annual contracts that had already been concluded privately.

TELEVISION IS CHEAPER—Joey McLeanatty, Lockheed chief structures engineer, told Van Fluegen recently while discussing proposed cabin and cabin windows requirements: "We could build 'em cheaper, lighter and stronger if we could leave the windows out entirely and install television sets instead."

FROM THE SOLID SOUTH—A certain stereotyped engineer in Atlanta, according to Von Fliegen, has a favorite saying: "Things wouldn't be like this if Truman were only alive."

BEHIND THE HEADLINES—Sometimes we like to give you readers a glimpse behind the Arrow-Wire headlines so you'll be glad you aren't editors. A strange sounding news story must have us from day one correspondent in Colorado. We held up the story and asked for a further check before putting it in. The McGraw-Hill World News Bureau did check and reported back to us.

"Our correspondent writes that he got it from an agent on the Colombian equivalent of the CIA who gave it from Lucas's personal file. He says my, 'When I checked at Lucas's office yesterday they told me something was amiss and that they doubted very much that Binford would invent money in Lucas, having the upper hand one to establish that one has to Colombia.' But when we discussed the matter longer he did not actually drop my information though it sounded rather fantastic at first." (Defense answer.) That's what we see.

A NEW DEPARTMENT—AVIATION. Week's Equipment Editor, George Christian, has an air arm from Florida that Paine is going about efficiently labeling all its departments with succinct three-letter labels: The Miami Overhead Bar becomes MOB; Computer Overhead Bar becomes COB. One straightforward PAA. Read in space preceding establishment of a Senate Overhead Bag.

NO PLANE SHOULD BE WITHOUT ONE—O. K. Shugay, the hydroplane specialist, tells us one about a fellow he knows. It seems the guy had been up to explore as much as the armpit and arched his back so far he believed quite firmly he could fly. The armbands he was wearing had been twisted around his wrists so tight with the leather straps that they cut off the circulation of the blood to his fingers. Some time later, the man, who had disengaged himself from the hydroplane with permission at the experimental station at Lakehurst, N.J., and, upon being informed that the altitude reached was causing difficulties, he suggested that water be dumped. When he returned to his office he removed a cell from the experimental station. Since they wanted to know just what the book really reads, here's a recorded belief: the guys asked them to hold the line, went to another place and called O. K. to find out.

ELECTION REPORT—Conrad Hoffman, in Atlanta, noting that we still haven't commented officially on last November's election, says he regards the results with mixed emotions. Says he, "It's like seeing your mother-in-law drive over a cliff in your new Cadillac." —R.L.W.

WHAT'S NEW

New Publications

Recent Developments in Visual Low-Approach and Landing Aids for Aircraft is a 19-page digest by author Dr. Massimo A. Garibaldi covering observations and activities at the Air Force/Navy Civil Landing Aids Station, Azusa, Calif., and of European and British organizations. Briefly covered are the methods employed in the flight tests at Azusa of various landing systems, Garibaldi's conclusion, and some new methods of aerodynamics measurement suggested by FAA Captain Howard Cone for low altitude work.

Write the Garbell Research Foundation, San Francisco, for copies. Price is \$2 each.

A compilation of traffic, operating and financial coverage as all U.S. registered airlines is presented in the current edition of *World Airline Records*. In addition, for the first time, data on foreign airlines is also included but is not as extensive or as that for U.S. carriers. This is a handy reference manual for airline executives and others seeking background information on the industry.

Telling the Market

Latest data on possible light aircraft purchases will be made available and exploring numbers on handbooks of cooperation can be obtained by writing Dept. G-39, Joe Massing, CAA, Hwy 8 W. Oberlin, Ohio 44074. Pittsburgh 22 . . . New information on aircraft purchases is now issued by the Defense Department. This data may be obtained by Civil Aviation Administration, Write Office of Aviation Information, CAA, Washington, D. C. 20590 booklet on aircraft needs, reflecting a comprehensive listing of the material interests of the new military. MILITARY AVIATION INFORMATION, this depicts many of the AN, F-100, F-105, F-106, F-107, F-108, and F-109 aircraft purchased to meet our needs. For aircraft performance analysis, Write Joseph T. Ryerson & Son, Inc., Box 509-A, Chicago, Ill.

General, technical and design data for precision investment casting is available for engineers and designers, detailing cost, tooling, large and small quantity production, handling of complex shapes, size limitations, finishes and releases. Write Hitchcock Manufacturing Co., Inc., Manchester, N.H.

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EDITORIAL

Due Notice or Smear?

The Civil Aeronautics Board, as urged by the Civil Aeronautics Act, has given Colonial Airlines due legal notice that it will investigate the airline beginning April 30 in New York to determine whether there have been violations of the act.

If the Board had refrained its notice to the airline affected it would have fulfilled its legal duty. But it also went to the trouble of sending a letter to the airline, which it had no right to do. The announcement made public reference to numerous violations in the act covering fare or reduced rate transportation, disclosure of holdings by airline officials in other aviation businesses, and to the need for safety. Keeping workers economic and records as prescribed by the law. It named Colonel President Sigmar Janss and Vice President A. M. Blodgett as possible violators. It refused to name named penalties applicable to certain violations.

But it refused to release the full list of pertinents until it is served on the airline. Why? Because, if and only, full publication before the inquiry is not required in the particular instance and might unreasonably affect the interests of the parties.

In this country we usually consider an individual innocent until proven guilty.

The Board in publishing the incomplete list of an accusation it places the airline far gone to unnecessary lengths to effect adversely the interests of one of the parties.

It has caused the airline with the stigma of guilt before the opening of the official inquiry. The answer came out earlier: Colonial's unannounced completion of 21 years without a fatal accident.

With the kind of test in view alone, it is surprising the Board is willing to go to the trouble of a cut and dried hearing at all.

Eventually—Why Not Now?

Collisions of planes with firms and other aircraft is a subject commercial and military aviation should be sounding clearly. Government authorities ought to be alarmed about it.

How many aircraft are flying at illegal altitudes as at present altitude? What is being done to the way of a nation wide campaign by all aviation interests to answer this question?

Signs are everywhere that something more should be done about preventing collisions of plane and plane than is being done. It seems needless to wait for crashes to prove it.

Then there are the collisions with mountains. There-by collision with nature, at least a natural cause remains. But with the propagation of coast in size, size, the recent purchase of Allentown DC-3 crash brought back to the public the old time newspaper headlines, "Avalanche Aviation Disaster." It is the kind of accident the public seldom can understand so it looks for an answer to motion people—who can adduce explain it satisfactorily either. Why in this day and age do aircraft by both commercial airlines was the highest known point in the sky, the public asks. Then much longer will they do so? The public has a right to know and these should be made understand and understood. Gathering and regulations existing to prevent the necessity of telling them that aviation isn't so safe as we could make it are really bad.

Reports of illegal flying and class squalls will get our eyes fewer, with increasing air traffic, unless something is done

about the subject. Action on the part of the airline alone, the civil government agencies alone, the military services alone is not enough. It must be a national, coordinated campaign with some disciplinary string in it.

Eventually. Why not now, and save lives?

Embarrassing, Eh What?

The New York Herald Tribune's Col. Rabb Wilson cables back from Hatfield, England, that if it-powers civil air transportation has not arrived yet, somebody had better tell the de Havilland Aircraft Co.

De Havilland has nine 56 passenger jet Comets rolling on the boney ready for final assembly and flight testing. Nine other Comets are on the production line pending toward completion. BOAC, of course, has bought the whole lot and may begin operating them as early as September. Col. Wilson says first schedules will be to Rome, Athens and Cagliari this November. "London, Africa, where there are 500 miles of nonstop transportation before blue New York," the Herald Tribune told its readers.

It was only five years ago next month that the Gloster Whirlfire flew for the first time. Several flights had been made earlier with after jet planes but the Whirlfire was the first successful jet.

Britain was far ahead of us in jet aviation ten years ago. She is still ahead of us in commercial jets. Even Canada has one prototype flying. We have one turboprop prototype flying. No jets.

We slide the British over there across the pond. A bit embarrassing for us Americans over here, eh?

The Newest CAB Member

With a second extension of Congress, the Civil Aeronautics Board hopes its acceptance on Capitol Hill will be a little easier. The newest Board member, anti-Sovietist Clark C. Coffey, will supplement the congressional experience of John Lee, who for two years was a congressman from Chicago before he was named to CAB.

The anti-Sovietist indicator is looking about Mr. Coffey's background. The man who replaces anti-Sovietist Harold Jones immediately leaves Capitol Hill and the national defense picture, as he was chairman of the Senate Armed Services Committee during the 81st Congress. But he has had little if any experience in aviation or transportation.

He was born John Chandler Coffey in Yonkers, N.Y., May 21, 1896, and was graduated from Yonkers High School. He served as a sergeant in the Army Engineers in the first World War with several months' service overseas. He was married in 1919 and became a member of the Yonkers Board of Education, in Yonkers, from 1914 to 1925, except for his military stint. He operated a Yonkers radio station, 1926 to 1932. Then he moved to Sioux City, Iowa, and engaged in the wholesale gasoline and oil business as president of Clark Coffey Oil Co., till 1936.

He failed to win the senatorial election in 1936 but was elected to a Republican in 1938, and was re-elected in 1944 for the term ending Jan. 31, 1951. He was defeated for re-election in 1950.

Mr. Coffey is a Protestant, a Mason, and is a member of the Odd Fellows and Elks. He and Mrs. Coffey have three children.

According to the New York Times of Sept. 26, 1950, the senator had urged President Truman the day before and said the President had promised him a position at the "defense effort" after Jan. 31. —Robert H. Wood

MAKING NEWS...MAKING HISTORY!



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